**Amendments to the Claims:**

This listing of claims will replace all prior versions and listing of claims in the above-identified application

**Listing of Claims:**

1 (Previously Presented).    A method of processing data in a stateful protocol processing system configured to process multiple flows of messages, said method comprising:

receiving a first plurality of messages of a first of said flows, said first of said flows comporting with a first stateful protocol;

deriving events of at least a first type and a second type from said first plurality of messages;

assigning a first protocol processing core to process said events of said first type in accordance with said first stateful protocol, said first protocol processing core being selected from among a plurality of protocol processing cores identified in a memory structure as being compatible with said events of said first type; and

assigning a second protocol processing core to process said events of said second type in accordance with said first stateful protocol.

2 (Original).   The method of claim 1 further including:

receiving a second plurality of messages of a second of said flows, said second of said flows comporting with a second stateful protocol; and

deriving events of at least a third type and a fourth type from said second plurality of messages.

3 (Original). The method of claim 2 further including:

assigning a third protocol processing core to process said events of said third type in accordance with said second stateful protocol; and

assigning a fourth protocol processing core to process said events of said fourth type in accordance with said second stateful protocol.

4 (Original). The method of claim 2 further including:

assigning said first protocol processing core to process said events of said third type in accordance with said second stateful protocol; and

assigning said second protocol processing core to process said events of said fourth type in accordance with said second stateful protocol.

5 (Original). The method of claim 1 further including:

identifying a first plurality of protocol processing cores configured to process said events of said first type; and

selecting said first protocol processing core from among said first plurality of protocol processing cores.

6 (Original). The method of claim 5 further including:

identifying a second plurality of protocol processing cores configured to process said events of said second type; and

selecting said second protocol processing core from among said second plurality of protocol processing cores.

7 (Original).  The method of claim 1 further including:

extracting a first flow identification key from said first plurality of messages;

generating a first local flow identification proxy based upon said first flow identification key; and

retrieving a first flow state characterizing said first of said flows using said first local flow identification proxy.

8 (Original).  The method of claim 7 further including:

extracting a second flow identification key from said second plurality of messages;

generating a second local flow identification proxy based upon said second flow identification key; and

retrieving a second flow state characterizing said second of said flows using said second local flow identification proxy.

9 (Original).  The method of claim 2 further including:

receiving said first plurality of messages over a first logical channel;

defining a first class of events corresponding to at least said events of said first type and said events of said second type; and

executing a first event-handling routine applicable to said first class of events.

10 (Original). The method of claim 9 further including:

receiving said second plurality of messages over a second logical channel;

defining a second class of events corresponding to at least said events of said third type and said events of said fourth type; and

executing a second event-handling routine applicable to said second class of events.

11 (Original).  The method of claim 3 further including:

retrieving a first flow state characterizing said first of said flows;

partitioning said first flow state into a first workspace portion and a second workspace portion; and

assigning said first workspace portion to said first protocol processing core and said second workspace portion to said second protocol processing core.

12 (Original). The method of claim 11 further including:

retrieving a second flow state characterizing said second of said flows;

partitioning said second flow state into a third workspace portion and a fourth workspace portion; and

assigning said third workspace portion to said third protocol processing core and said fourth workspace portion to said fourth protocol processing core.

13 (Original). The method of claim 2 further including:

setting a first flow timer associated with said first of said flows;

generating a first timeout expiration event upon expiration of said first flow timer; and

forwarding said first timeout expiration event to a first selected protocol processing core.

14 (Original). The method of claim 13 further including:

setting a second flow timer associated with said second of said flows;

generating a second timeout expiration event upon expiration of said second flow timer; and

forwarding said second timeout expiration event to a second selected protocol processing core.

15 (Original). The method of claim 1 further including:

    generating an additional event based upon a current state of said first of said flows;

    retrieving a current flow state on the basis of said additional event; and

    assigning a third protocol processing core, different from said first protocol processing core and second protocol processing core, to continue processing said events of said first type and said second type.

16 (Original). The method of claim 2 further including:

    establishing a first communication buffer associated with said first of said flows, said first communication buffer being of a first buffer size based upon information within said first plurality of messages; and

    establishing a second communication buffer associated with said second of said flows, said second communication buffer being of a second buffer size based upon information with said second plurality of messages.

17 (Original). The method of claim 16 wherein said first communication buffer is comprised of a predetermined number of pages of equal size wherein one of said pages is allocated in connection with each of a plurality of allocation operations performed during communication of data associated with said first of said flows.

18 (Previously Presented). A stateful protocol processing apparatus configured to process multiple flows of messages, said apparatus comprising

an input processing unit disposed to receive a first plurality of messages of a first of said flows, said input processing unit deriving events of at least a first type and a second type from said first plurality of messages;

a first protocol processing core, said first protocol processing core being included among a plurality of protocol processing cores identified in a memory structure as being compatible with said events of said first type;

a second protocol processing core; and

a dispatcher operative to assign said first protocol processing core to process said events of said first type in accordance with a first stateful protocol and to assign said second protocol processing core to process said events of said second type in accordance with said first stateful protocol.

19 (Original). The apparatus of claim 18 wherein said input processing unit further:
receives a second plurality of messages of a second of said flows, said second of said flows comporting with a second stateful protocol; and

derives events of at least a third type and a fourth type from said second plurality of messages.

20 (Original). The apparatus of claim 19 wherein said dispatcher further:

assigns a third protocol processing core to process said events of said third type in accordance with said second stateful protocol; and

assigns a fourth protocol processing core to process said events of said fourth type in accordance with said second stateful protocol.

21 (Original). The apparatus of claim 18 wherein said dispatcher is further operative to generate a first local flow identification proxy based upon a first flow identification key extracted from said first plurality of messages.

22 (Original). The apparatus of claim 21 further including a lookup controller disposed to cooperate with said dispatcher in retrieving a first flow state characterizing said first of said flows using said first local flow identification proxy.

23 (Original). The apparatus of claim 22 further including:

a first on-chip memory associated with said first protocol processing core; and

a second on-chip memory associated with said second protocol processing core;

wherein said dispatcher assigns a first workspace portion of said first flow state to said first protocol processing core and a second workspace portion of said first flow state to said second protocol processing core, and wherein said lookup controller manages transfer of said first workspace portion to said first on-chip memory and said transfer of said second workspace portion to said second on-chip memory.

24 (Original). The apparatus of claim 18 further including a lookup controller configured to administer a first flow timer associated with said first of said flows, said lookup controller sending a first timeout expiration event to a first selected protocol processing core upon expiration of said first flow timer.

25 (Original). The apparatus of claim 18 wherein said first protocol processing core generates an additional event based upon a current state of said first of said flows, said apparatus further including a lookup controller disposed to cooperate with said dispatcher in retrieving a current flow state on the basis of said additional event.

26 (Original). The apparatus of claim 25 wherein said dispatcher assigns a third protocol processing core, different from said first protocol processing core and second protocol processing core, to continue processing said events of said first type and said second type.

27 (Original). The apparatus of claim 19 further including a socket memory controller configured to establish a first communication buffer associated with said first of said flows, said first communication buffer being of a first buffer size based upon information within said first plurality of messages.

28 (Original). The apparatus of claim 27 wherein said socket memory controller is further configured to establish a second communication buffer associated with said second of said flows, said second communication buffer being of a second buffer size based upon information with said second plurality of messages.

29 (Previously Presented). A stateful protocol processing apparatus configured to process multiple flows of messages, said apparatus comprising

an input processing unit disposed to receive a first plurality of messages of a first of said flows and a second plurality of messages of a second of said flows, said input processing unit generating a first additional plurality of events in response to said first plurality of messages and a second additional plurality of events in response to said second plurality of messages;

a first cluster of protocol processing cores including a first plurality of protocol processing cores compatible with a first stateful protocol and a second plurality of protocol processing cores compatible with a second stateful protocol;

a dispatcher operative to assign ones of said first plurality of protocol processing cores to process ones of said first additional plurality of events in accordance with said first stateful protocol and ones of said second plurality of protocol processing cores to process ones of said second plurality of events in accordance with said second stateful protocol;

a lookup controller in communication with said dispatcher, said lookup controller retrieving flow state information associated with said flows from external memory;

scratchpad memory operatively connected to said dispatcher; and

a socket memory controller operatively connected to said scratchpad memory.

30 (Original). The apparatus of claim 29 wherein said first additional plurality of events include events of at least a first type and a second type, said dispatcher assigning a first of said protocol processing cores to process said events of said first type in accordance with said first stateful protocol and assigning a second of said protocol processing cores to process said events of said second type in accordance with said first stateful protocol.

31 (Original). The apparatus of claim 30 wherein said second additional plurality of events includes events of at least a third type and a fourth type, said dispatcher assigning a third of said protocol processing cores to process said events of said third type in accordance with said second stateful protocol and assigning a fourth of said protocol processing cores to process said events of said fourth type in accordance with said second stateful protocol.

32 (Previously Presented).    The method of claim 1 wherein the memory structure comprises an array of memory records, the method further including using the first type as an index into the array.